

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **19 AUG 2004**

Applicant's or agent's file reference
21066PCT

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/AU2004/000864

International filing date (day/month/year)
30 June 2004

Priority date (day/month/year)
30 June 2004

International Patent Classification (IPC) or both national classification and IPC
Int. Cl. ⁷ **C12Q 1/68, C12M 1/34, G01N 33/48**

Applicant
RAUSTECH PTY LTD et al

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

10/562369

PCT/AU2004/000864

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 2, 3, 5, 6, 8, 10, 11-52	YES
	Claims 1, 4, 7, 9	NO
Inventive step (IS)	Claims 11	YES
	Claims 1-10, 12-52	NO
Industrial applicability (IA)	Claims 1-52	YES
	Claims	NO

2. Citations and explanations:

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1: US 2004/0055892

D2: WO2003/062456

D3: M. STEWARD ET AL. "NANOXEROGRAPHY: THE USE OF ELECTROSTATIC FORCES TO PATTERN NANOPARTICLES", Proceedings of the 2003 NSF Design Service and Manufacturing Grantees and Research Conference, Birmingham, Alabama, 6-9 January 2003, p.1-7.

D4: Derwent Abstract Accession No.92-154370/19, Class S06,
JP 04-086602 A (TOPPAN PRINTING CO LTD) 19 March 1992

Document D1 discloses the patterned electrophoretic deposition of nanostructure materials onto the substrate covered by mask. Electrode is attached to the areas not covered by mask and the direct (or alternating) field is applied onto the substrate causing the nanoparticles to migrate and attach themselves to the substrate. Nanoparticles are initially prepared in either true solution or in suspension, i.e. there is not disclosure of emulsion.

Document D2 discloses fabrication method chips and arrays for analytical (bio)chemistry applications. A multielectrode chip lithographed in wafer with a number of polarisable electrodes is put into contact with solution or suspension of colloidal carrier particles (such as nanoparticles) having biochemical recognition element attached. Typical recognition elements are molecular tweezers, enzymes, antibodies, receptors oligonucleotides, etc. Potential is briefly applied to selected electrodes and the recognition elements are selectively deposited onto them. Typical carrier particles included are: colloidal gold, glass, latex, polyurethane or unspecified polymers.

Document D3 discloses the concept of nanoxerography. A high resolution charge pattern is generated in the electret film to which nanoparticles in the solution or suspension are attracted. Particles are electrostatically assembled into a spatial pattern.

The use of nanoxerography is suggested in the area of electron/photon devices, high-density data storage, protein recognition, DNA hybridisation etc.

In each of the documents D1-D3 particles are initially present in the (true) solution or suspension, i.e. there is no disclosure of the use of emulsions. It is noticed, however, that the concepts of suspension and emulsion are possibly valid only for down to 0.1 micrometer size particles. In the case of solution of nanometre structures, suspensions and emulsions can not always be distinguished from each other.

is/ble

Still is an emulsion

not extendable to other properties

Document D4 discloses the production of a colour filter by electrophotographic process. An electrostatic pattern is generated onto the electrophotographic sensitive body. A liquid developer, consisting of coloured resin dispersed in the carrier liquid, is then applied to produce desired pattern of pixels. Document does not specify the type of dispersion.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 34 is not fairly based because of the omission of the feature that liquid composition comprises emulsion.

Ok L add 39

**WRITTEN OPINION OF THE
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

NOVELTY AND INVENTIVE STEP – CLAIMS 1-52

In light of the above observation it is concluded:

Claims 1 and 4 are not novel when compared independently to D1, D2 and D3 because all essential features are disclosed. Furthermore, appended claims 2, 3, 5, 6 and 52 relate to parameters or structures that are merely matters of design choice when the general technical knowledge about the state of the art is used and hence they cannot contribute to patentable invention.

Claims 7 and 9 lack novelty when independently compared to D2 and D3 because all essential features are disclosed. Furthermore, appended claims 8, 10, 12-33 and 51 relate to parameters or structures that are merely matters of design choice when the general technical knowledge about the state of the art is used and hence they cannot contribute to patentable invention.

The invention defined in claims 34, 42, 44 and 46 does not involve an inventive step in light of D3 and D4.

The claimed invention differs from the cited art in mere variation of steps disclosed or suggested in D3 and D4 and with the use of emulsion.

I consider that this difference constitutes no more than a mere workshop improvement. It is an arrangement that any competent worker in the art would be expected to make directly and without difficulty and by routine steps alone.

Furthermore, appended claims 35-41, 43, 45, 47-50 relate to parameters or structures that are merely matters of design choice when the general technical knowledge about the state of the art is used and hence they cannot contribute to patentable invention.

INDUSTRIAL APPLICABILITY CLAIMS 1-52

Invention defined in claims 1-52 is industrially applicable.